

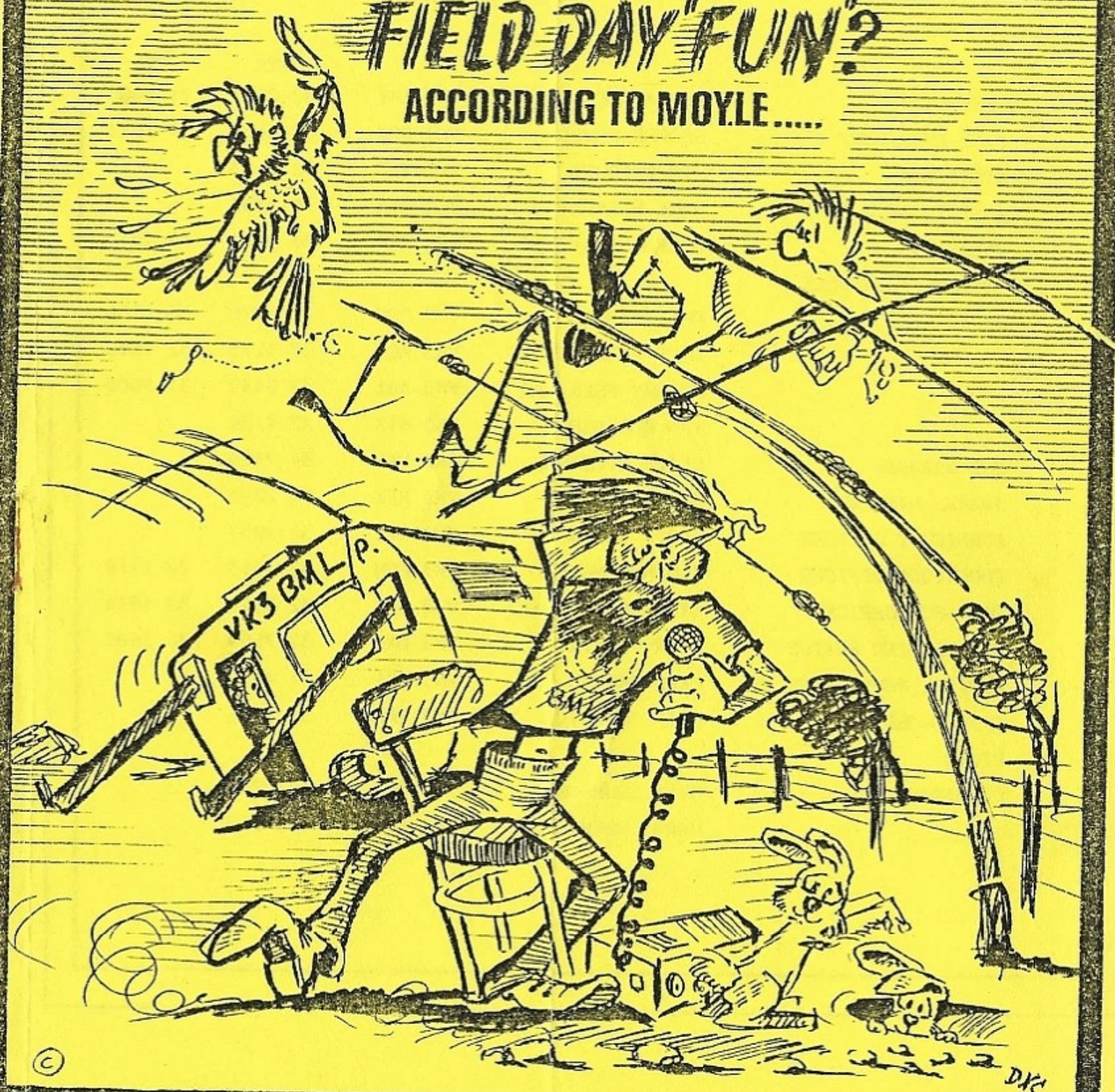
84/02

BARC NEWS

FEB. 84

FIELD DAY "FUN"?

ACCORDING TO MOYLE.....



Monthly Newsletter of the Ballarat Amateur Radio Group

REGISTERED BY AUSTRALIA POST, PUBLICATION NO. VBH3397

84/02

THE big wheel



			<u>Home</u>	<u>Bus.</u>
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<i>COMMITTEE</i>	BILL JOHNSON	VK3 DWJ	40 2288	
	HARRY HEKKEMA	VK3 KGL	35 7563	

84/02

3

Just one more minute...

Minutes of General Meeting held 27.1.84.

Meeting called to order by Past Pres George DOK who welcomed Bob VK3 DIF and Michael VK2 NIB to the meeting.

Apologies. Murray, AAI. John, YCS. Ron, XLA. John, PUA. Ted, NIZ. Stan, SE.

Treasurers report received and accounts passed for payment.

Inward Correspondence. Acceptance from Des Clarke WIA QSL Manager to be Guest Speaker at February Meeting.

Notification of WIA Midland Zone Convention at Strathfieldsaye 19th Feb.

Awards Manager Maurie reported 3 Goldrush and 11 D.X. Widows awards out \$100.00 was paid into Club funds, thanks Maurie.

Q.S.L. Manager Cliff reported 602 cards out and 364 in - mainly for BML. he also said that the Club Net was going quite well considering the noisy conditions on 80 mtrs. An average of 24 amateurs were joining in the net.

Technical. Permissin was granted to install new Xtal in repeater.

Education. Classes for the A.O.C.P. examination in August will start in February at Ballarat Nth. Technical School on Tuesday evenings, information from Jim ANH or Bill DWJ.

Publicity. Geoff spoke on a very successful Xmas breakup at Buninyong Gardens and moved a vote of thanks to Fred NIB and Brian ZBS for the donation of trophies. B.A.R.G. will again be active in Wendouree Fun Day and volunteers to assist are needed, date is 25th March.

Hamvention. will be held on 10th and 11th of November. Dick VU is Convener Dick AEX assistant Convener and Max YNW Treasurer Secretary.

Wicen. Dick AEX reported that WICEN has been recognised by the SES and that a book on emergency procedures would shortly be circulated to members. Dick also named Band Leaders for the John Noyle Contest and asked for operators to make the weekend a success and allow the Club to win again.

Begonia Car Rally. This will be held on Saturday March 3rd 9am to 6pm. The Club has been requested to man 6 stations around the course.

Raffle. The monthly raffle for the family fund was run, and won by Bill dwj. After a demonstration of a Commodore 64 computer with RTTY & CW programme the meeting closed at 8.55pm.

73s. Jim VZD.



VIC-20 & COMMODORE 64

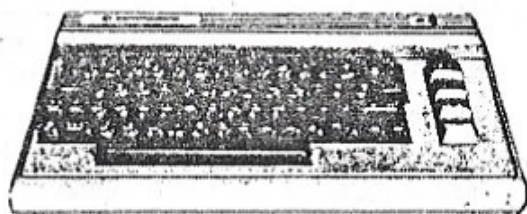
Computers

VIC 20



\$299

COMMODORE 64



\$499

For latest prices & Software info
Daylesford Newsagency
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55 VINCENT ST, DAYLESFORD

Ph. 053-482061 (Andy)



84/02

AMATEUR TELEVISION NEWS

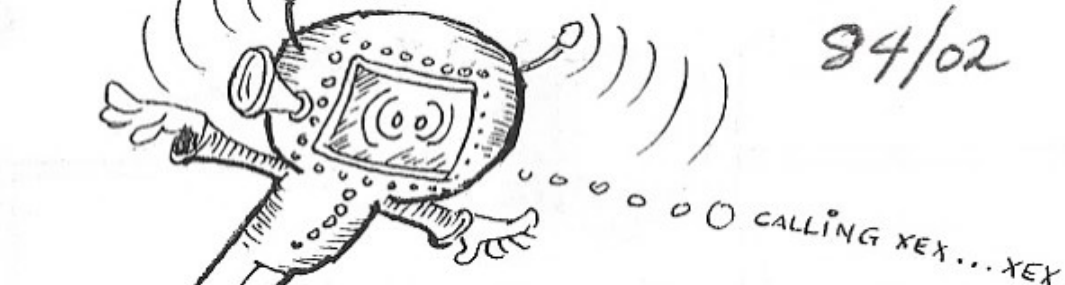
This will, I hope be the first of a regular ATV column. The main object is to stimulate interest in ATV in the Ballarat area. The only ATV transmitted at the moment is simplex on 426.250 MHz (approx. ch. 21 UHF). There are only 3 amateur's regularly active, they are George VK3DKJ, Stan VK3SE and myself Ernie VK3DET. I hope to have some Technical ATV video tapes from Ron Harrison soon and then I will run a regular Television broadcast. In future issues I will describe the various kits parts and circuit boards that are available at cost from Howard Rider in Melbourne. My station is fairly basic made from cct boards supplied from the Melbourne ATV group. My antenna is a home-made II element Yagi up at 30 feet fed with inexpensive 75 ohm T.V. co-ax, the output amplifier uses the Mitsubishi M57716 module which puts out about 15 watts with this set-up and video from a pre-recorded i Dent video tape (no camera). I can get an almost noise free full colour picture across town to Stan and George. With higher gain antenna - more power and good quality low loss co-ax etc. even better results could be obtained. A reasonable picture was received from Stan with less than 1 watt so high power is not essential. From these results it shows that a lot of money is not needed to get pictures across town. A lot of T.V. sets these days have a UHF tuner although some only go down to channel 28, mine only supposedly goes to 28 but receives my ATV picture and sound perfectly. All that's required to receive is good co-ax and a small Yagi (II element is only about 1 metre long). If anyone wants me to put a picture on or advise in getting started then call me on air or telephone A.H. 31 7666 (no midnight calls please). See you all next issue or on 426MHz.

From,

ERNIE TURNER

VK3DET

84/02



AMSAT AMS-2064 TRACKING PROGRAM
VK3DITO SCHEDULE OSCAR 10 FROM: 01MAR84 013136

DATE	AOS	LOS	MAX	LOS DATE	DX/EL	AZ
29FEB84	2152	0131	0131	01MAR84	18034 *	306
01MAR84	0733	0845	0733	01MAR84	15453 *	304
01MAR84	2056	0213	0200	02MAR84	17977	310
02MAR84	0633	0800	0633	02MAR84	16194 *	309
02MAR84	2005	0318	0119	03MAR84	17481	317
03MAR84	0508	0715	0508	03MAR84	17114 *	312
03MAR84	1918	0630	1918	04MAR84	13509 *	269
04MAR84	1831	0545	2358	05MAR84	16747	333
05MAR84	1746	0500	2317	06MAR84	16497	342
06MAR84	1701	0414	2236	07MAR84	16346	352
07MAR84	1616	0328	2155	08MAR84	16307	1
08MAR84	1532	0242	2114	09MAR84	16383	11
09MAR84	1448	0154	2033	10MAR84	16569	20
10MAR84	1404	0103	1952	11MAR84	16847	29
11MAR84	1320	0009	1912	12MAR84	17201	37
12MAR84	1235	2305	1831	12MAR84	17627	44
13MAR84	1151	1342	1342	13MAR84	16795 *	68
13MAR84	1818	2139	1818	13MAR84	18084 *	49
14MAR84	1106	1227	1227	14MAR84	15864 *	75
15MAR84	1020	1128	1128	15MAR84	15055 *	80
16MAR84	0934	1036	1036	16MAR84	14298 *	85
17MAR84	0846	0947	0846	17MAR84	13684 *	289
18MAR84	0757	0858	0757	18MAR84	14303 *	294
18MAR84	2156	2328	2328	18MAR84	17745 *	303
19MAR84	0704	0812	0704	19MAR84	15106 *	299
19MAR84	2034	0039	0039	20MAR84	18068 *	308
20MAR84	0609	0726	0609	20MAR84	15777 *	304
20MAR84	1938	0123	0043	21MAR84	17846	313
21MAR84	0500	0641	0500	21MAR84	16608 *	308
21MAR84	1848	0556	1848	22MAR84	14045 *	274
22MAR84	1800	0512	1800	23MAR84	13439 *	271
23MAR84	1713	0427	2241	24MAR84	16710	336
24MAR84	1628	0342	2200	25MAR84	16494	345
25MAR84	1543	0257	2119	26MAR84	16381	355
26MAR84	1458	0211	2038	27MAR84	16379	4
27MAR84	1415	0125	1958	28MAR84	16491	14
28MAR84	1330	0036	1917	29MAR84	16705	23
29MAR84	1246	2346	1836	29MAR84	17005	31
30MAR84	1202	2252	1755	30MAR84	17378	39

FOR SALE

ATN 10M 3EL BEAM..EXCELLENT COND..\$50.
HUSTLER MOBILE WHIPS AND BASE..WHIPS FOR
80M and 2 for 10M..BEST OFFER.

CONTACT ANDY..VK3DITO ON [053]482061.

Have you ever sat in a Camper Van out in the middle of a paddock in the blazing sun, the wind blowing a gale and dozens of flies? Well I have. Let me tell you a little about it. Boy what an experience.

Imagine, if you can (I know it might be hard but just try a bit) me sitting there with the mic. in my left hand a pen in my right, calling "C.Q. Contest, this is VK3 BML Portable calling and listening." The fright I got when someone actually called me was incredible. After I picked up the mic. off the floor, untangled myself from the ^{rope} that was tied from one side of the Camper to the other, to stop the wind from blowing it over, and found my pen again ---- I couldn't remember his call sign.

"What do I do?". I asked Max and Dick.

"Go back to him", they said.

"But how?". I asked.

Their looks said -- "With the mic. Stupid. Dumb YL!!"

So I just went back to him as "The station calling VK3BML Portable could you try again please! Back he came and he gave me my first number. My number to him was 591 03. I was successful. I could do just as well as the Men. Then the channel sounded just like a session of Parliament, every one talking over the top of every one else. There wasn't a Gentleman on the band. "I thought that most VK's were fairly polite!" "Not in a contest, call over the top of them!" was the reply I got from the fellows. So that's exactly what I did. I called my heart out. There were times when I was very frustrated, but I guess the KILLER INSTINCT took over. Every time I heard a call sign that we hadn't worked, I pestered him until out of sheer desperation he gave me a number. I think he realized that the only other way he was going to get rid of me was to turn HIS rig off.

I sat for a couple of hours. The fellows actually left me on my own. Did they finally trust me?

Then DISASTER! The rig went dead! SHEER PANIC! I couldn't find the switch to turn the rig off. I whispered to the rig "PLEASE DON'T BE BLOWN UP!" I thought "I must be going mad talking to the rig;" as I made a mad dash down the paddock to find Dick or Max. I found them at the bottom of the paddock under the COOL PINES, and I tried to explain to them what had happened to their precious rig. Then back to the Camper we raced to inspect the damage. What relief I felt when Dick reached over the BACK of the set (What a place to put the on off switch, no wonder I couldn't find it!) turned it off, then turned it on again and it worked.

"Bit Hot. She's right" he said as he lovingly patted the rig.

"Time to pack up anyway;" he said. "Already" was my reply, "I was having a great time until disaster struck!" "How did you go?" Max asked. "We're up to 59123" I said. "Good Girl!" they both said in unison. I was no longer considered a "Dumb, Stupid YL!" terrific. "Now lets pack up!" Dick said. After their little bit of praise I was only too willing to help. With everyone pitching in we had everything packed up in no time.

I can now roll and tape guy wires together. I know how a beam comes apart and packs away and I can roll and tape coax together.

Thank-you fellows for allowing me to be a part of your team. I was proud to spend my day with the B.A.R.G. members that attended the JOHN MOYLE MEMMORIAL FIELD DAY. I hope it won't be my last! This YL drove away from the site of the field day with a new found respect for you all. Congratulations fellows. You all did a fantastic job.

Yours in A.R.

Yvonne. Second Op. to

VK3YHW.

SEE FRONT PAGE FOR
"ON-THE-SPOT" ILLUSTRATION

84/02

HF BROAD-BAND 1:1 BALUN

Charlie Gnaccarini VK3BRZ

When constructing dipoles and other HF antennas, especially for field -day use, many of us hesitate to buy baluns for them.

Baluns aren't the cheapest and we try to get away without them if we can.

Yet it needn't be so, a 1:1 broad-band HF balun is a very simple item and the reason why no-one home-brews them is simply because most manufactures go out of their way to conceal the actual balun by encapsulating it in epoxy resin or other near-indestructible casing, so that no-one can copy it. But some designs do exist, most of them seem to use toroidal cores which are fine, but are somewhat expensive and difficult to wind.

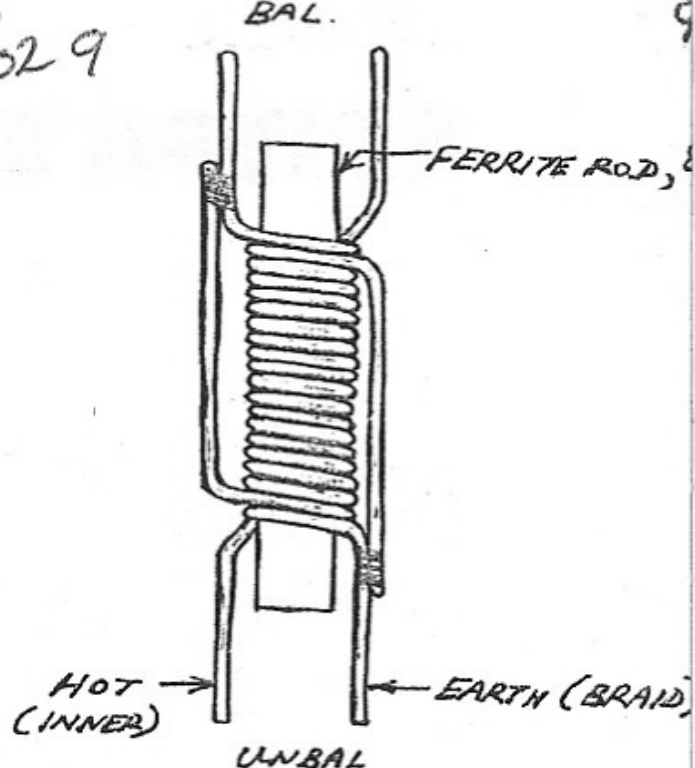
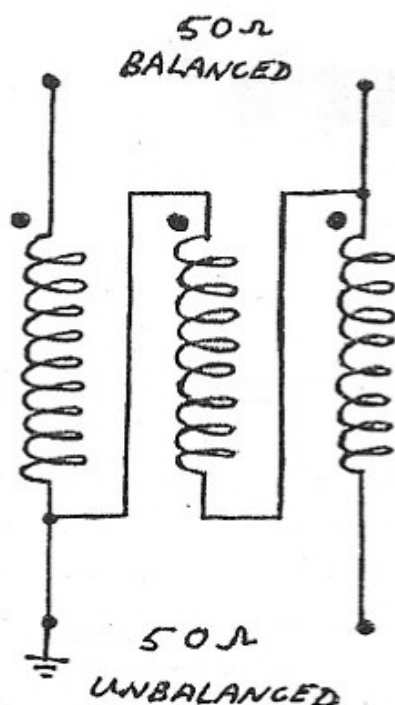
Here is a simple design which uses a linear core and performs every-bit as well as a bought one.

The first item to obtain is a ferrite rod such as is used on the larger transistor radios. These are available at most radio junk shops around Melbourne for about a dollar.

You will need one at least 9mm diameter and about 120mm long, even better is one about 12mm diameter. Each rod will make two baluns. Start by breaking the rod in half. Find the mid-point and with a triangular file, nick the rod right-around in the middle. Then place it so that each end is supported on a match, Now get a broad bladed screwdriver, place it in the groove and give it a light sharp tap with a hammer, the rod will break neatly into 2 equal parts.

Take one piece and wrap ONE LAYER of insulation tape over it neatly. Now the tricky bit, A trifilar winding has to be made to fit over the ferrite rod. This can best be done by cutting THREE equal lengths of 14 gauge enamelled copper wire (preferably new) about 45cm long (depending on the rod dia.) and winding them side-by-side on a dowel somewhat smaller than the rod. When the windings are released they will spring out to roughly the diameter of the ferrite rod. They can then be slipped over the rod for a neat fit.

The circuit diagram is as shown on the sketch. The dot shows the start of the winding. Note that the middle winding is "cross-corrected" to the others. No amount of explanation will describe this but the final product should look like the sketch. ABOUT 9 Turns are required. Where the middle winding joins the other two, it is advisable to wrap some 28 gauge tinned copper wire over the joint before soldering. This gives a good strong joint as well as holding the wires together while soldering.



The balun is bi-directional ie. symmetrical. Either end can be nominated as the balanced end and the opposite end will be unbalanced. Note however that the lead which joins the middle winding will be EARTH on the unbalanced end. This lead goes to the co-ax braid always.

A dozen or so of these baluns have been constructed and tests have shown them to be essentially lossless from the 160 m band up to 6m.

One was tested at power levels of over 1KW. and performed perfectly.

NOTE... Watch this space in the next issue for another use of ferrite rod.

oooooooooooooooo

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84/02

EDITOR'S blurb*

There was no newsletter in December, nor in January. There almost wasn't one in February, - well, almost. In part it was due to the holiday season, in part due to some pressing personal problems on my own side. No need to elaborate on that, but let it be said that the worst seems to be over and that the 2nd Op., at long last, can look forward to some future.

My last editorial asked the question: Is it all worth it? Well, fellers (and gals), I stand corrected. The past few weeks have shown me a comradeship and, occasionally, a compassion from people I've never met eye-to-eye, which deserves praise.

Local and overseas hams did their level best to help in so many different ways, to get me over a particularly hard period in my life, - it was downright embarrassing at times.

Messages to relatives overseas were passed on, without much fuss, over tremendous distances, when other means failed and some guys went as far as to call from Japan, at some unearthly hour, just to see if they could be of help.

What's all this leading up to? Simple: This world-wide group of individuals, those Ham operators we only know by first-name and call sign mostly, showed that they care.

Without getting mushy about it, - THANKS, GUYS! Without their help, things could have been a lot worse.

Sorry, that my personal commitments did not allow me to take part in all the activities mentioned in the newsletter, - but with a little help from other mates, at least we got this newsletter off the ground, - sort of.

If it falls a bit short of expectations, - sorry, there just wasn't the time. Better luck next time. If you send in your contributions to the mag., please send them in in plenty of time, it will make my job a bit easier, too.

Let's hope that the new year will bring better times for all of you and, once more, - THANKS FOR EVERYTHING.

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EVERYTHING FROM A TO Z IN ELECTRONICS

WHAT'S ON



- 20 th FEB. Novice classes begin at Ararat Tech
- 24 th FEB. B.A.R.G. Meeting. Guest Speaker.
- 25 th FEB. General Meeting of Western Zone at 1:30pm
Lake Bolac Hotel.
- 28 th FEB. Full Call Theory classes begin at Ball. Nth
Tech School.
- 3 rd MAR. Begonia Car Rally. Volunteers needed !
- 25 th MAR. Ballarat Shire 'Family Fun Day'.

LIKE TO HAVE ALL THOSE 'FULL CALL' PRIVILEGES AT YOUR DISPOSAL ??????

THEN COME ALONG TO THE THEORY CLASSES ABOUT TO BEGIN AT NORTH TECH.
DOORS OPEN AND WELCOME EXTENDED TO ALL INTERESTED PARTIES AT 7:00pm
ON THE 28TH FEBRUARY.

CONTACT JIM VK3ANH or BILL VK3DWJ FOR DETAILS !!!!!!!!!

SPELLING NOT MINE (ca)

84/02

The X-Ray Tube - a Diode by another name

M. Glisson, Radiographer
VK2NIB

All of us reading this at one time or another will submit ourselves to a medical examination using X-Ray. The test will produce an image on film called a radiograph. The interesting point to which I would like to address this discussion concerns the tube which produces the X-Ray Beam.

In its basic form the X-Ray tube can be considered as a highly specialised diode, or in some cases a specialised triode. The construction of the tube includes all the elements of a thermionic diode. An evacuated glass envelope contains the cathode filament(s) and anode. Below is a diagram which discloses the configuration in a typical tube insert.

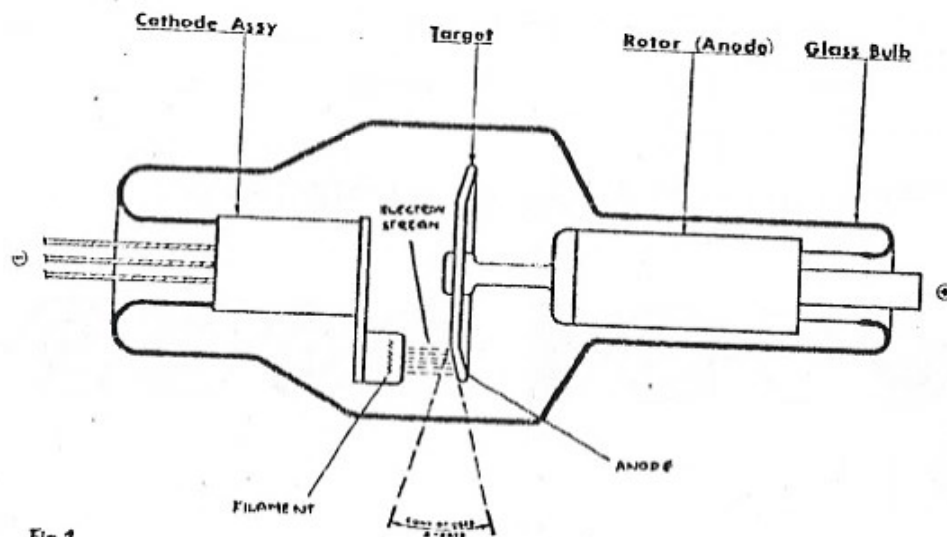


Fig 1

The first thing that you notice is that the tube doesn't at all look like the X-Ray tube you observed at your last examination. The tube insert itself is actually inserted inside a shielded casing which is full of insulating and cooling oil. Only a small window is left unshielded to allow X-Rays to pass out. It is the large casing we see suspended on the very moveable suspension system in the hospital.

The actual production of X-Ray is a very simple matter, accelerate a stream of electrons, in a vacuum and then let them strike a stationary object. Depending on the type of material which composes the object this dictates the type of radiation produced, i.e. light from phosphors, heat and light from some metals, X-Ray and heat from other metals.

In Modern X-Ray tubes the Anode material is metallic Tungsten which efficiently produces 99% heat and 1% X-Ray. This represents a typical conversion of energy from one form to another in this system. This factor provides an explanation.- for the coolant oil around the tube. To produce X-Rays in sufficient amounts to enable an image to be made; a fairly high accelerating kilovoltage is required (in the range 50-150 kV). The oil also prevents arc over and insulates Anode and Cathode connections

from each other (see diagram 2). It maintains a high level of electrical insulation providing electrical safety for the operator.

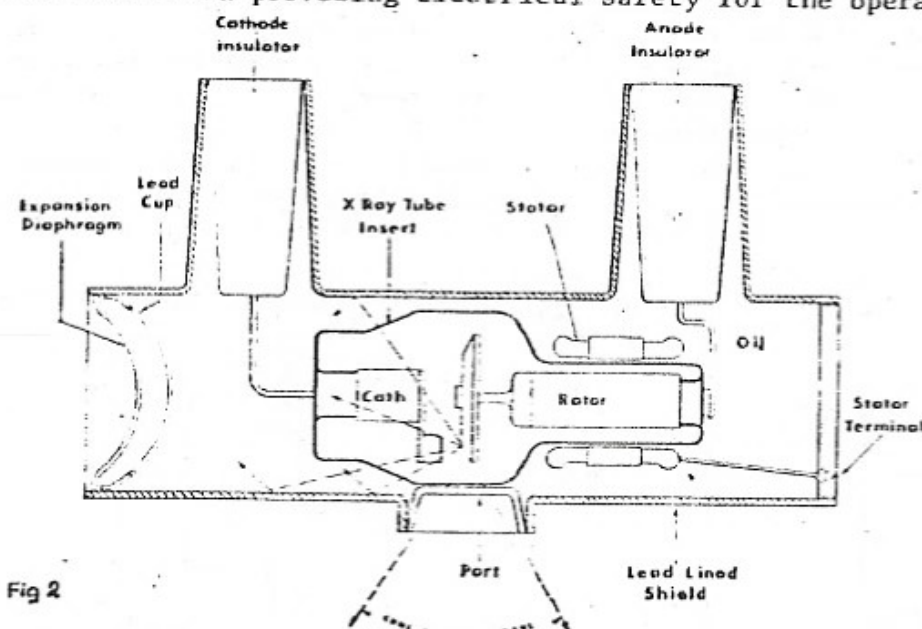


Fig 2

The anode of the tube is a disc mounted on a shaft with bearings, able to be rotated at a high speed (2000rpm). This also allows us to spread the heat effects of the finely focussed beam of electrons around the disc reducing local heating problems. To state that again, the beam of electrons from the cathode are focussed to a particular static point on the anode disc, if we don't spread the heat produced this beam will melt the anode at that point. To overcome this problem we rotate the anode and evenly spread the heat. Typical sizes for the cathode focussing of the electron beam at the anode range from 0.3 mm x 0.3 mm to 2.0 mm x 2.0 mm depending on application. Heating effects of the anode disc are also reduced by conducting heat down the anode stem and then into the surrounding coolant oil by convection.

X-Rays are produced by the interaction of the electron beam and the Tungsten Atoms electronic structures, as a result of this beam production at the Anode is omnidirectional. To get only a useful beam in one direction we shield all others and only allow an exit via a small window. The surrounding casing is lead, and the useful beam we produce is further controlled by interleaved leads like a camera iris. This restricts the useful beam to the area only to be imaged. The radiation leakage in any other direction other than the useful beam is minute and regularly tested to conform with strict standards.

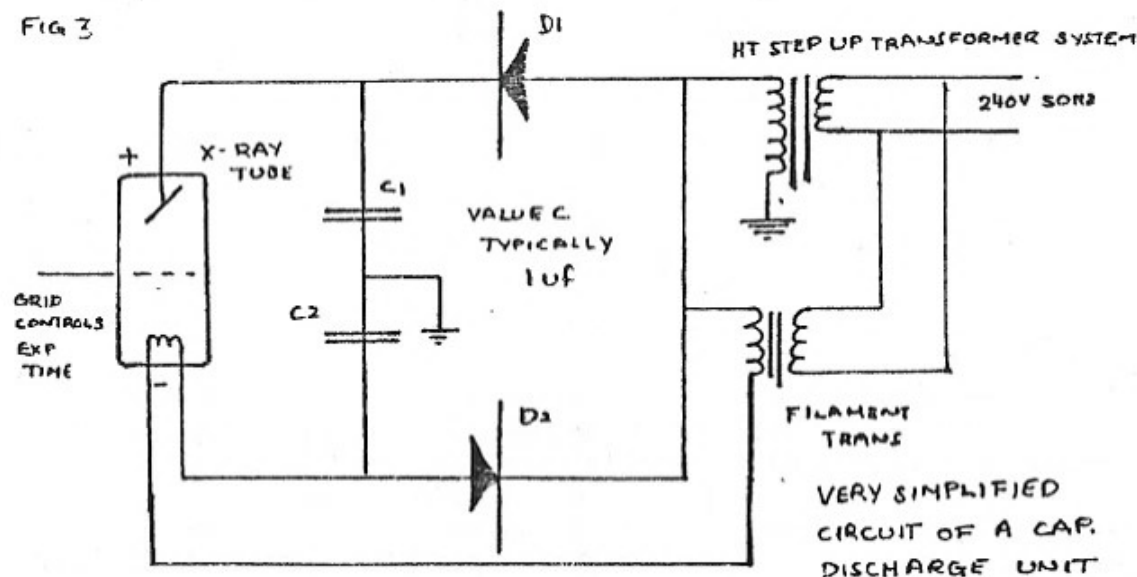
Since I have deviated a little I will return to our specialised diode and relate some specific facts. Potential applied across the tube to accelerate the electron beam can vary between 50-150 kVp depending on beam penetration required by the object. Tube current cathode to anode varies between 20-600 mA depending on amount of radiation required per unit time. These factors determine properties of the resultant beam of X-Ray in penetration and amount required to produce a diagnostic image.

In producing the potentials and currents for the X-Ray tube a step-up HT Transformer is used with Voltage and Current stabilisation on load. Strict electrical standards minimise electrical risks to both radiographer and patient while producing the required electrical power for radiation production.

84/02

When however does our diode tube become a triode, when we interspace a grid to control the electron flow cathode to anode. This can be used to control exposure time. This type of tube uses grid-cutoff to control tube current and X-Ray production. It allows itself to be able to produce short sharp pulses of X-Ray which can be used for producing cine-studies of the body at minimal radiation dose. Also these tubes can be used in Portable X-Ray Units to control the tube current. A series capacitor is charged to a High Tension by a voltage doubler circuit through a Step Up Transformer and the grid prevents tube discharge of the Capacitors across the tube till X-Ray production required (see Fig. 3).

FIG 3



My discussion is almost completed, except for a few important comments on X-Ray. No X-ray can be produced when the tube is not energised. Also after an X-Ray has been produced and absorbed by objects in its path no residue of radioactivity is left. This is a popular misconception, so you need not wash, air or destroy articles you were wearing while submitting to your X-Ray. Also you will not glow in the dark after you would consider many X-Rays.

Now I hope that you have all rediscovered that valve technology isn't all dead. The X-Ray tube has existed in the same form for over 90 years and solid state technology hasn't a chance to supercede a very specialised diode.

PEARLS-OF-WISDOM DEPARTMENT:

"Any diode can become a Zener, providing you apply a large enough voltage"

Kev, VK3-WN (Whisky-Nose)

" BREAK UP "

A great day !

Sun shining brightly with not a cloud in the sky and the prospect of sunburn running at better than even odds. Gee ! no derogatory remarks about Ballarat's weather this time; when we organize something we take care of the lot ! Including the harrassment of the locals by driving around their patch with all sorts of weird, Hey, how could something be classed as weird when its been assembled with such "TLC". Perhaps I should describe these configurations of metal mounted atop sundry vehicles as things of beauty, even though they were twisting and turning as if possessed by some frightening and unseen force.

This activity, coupled with the smell of burning, oops, cooking meat plus the appearance of Santa Jim helped to create the congenial atmosphere in which members of B.A.R.G., G.A.R.C., visitors and their families found themselves at the Bunninyong Gardens.

A great day ! With June, YL of VU winning the magnificent watch raffled during the afternoon and Dick ABX, Geoff ADB, Harry KGL, Fred NIH, Ray PRA, amongst others, showing those sneaky 'foxes' Neil NIQ and Murray AAI, their proficiency in finding hidden transmitters in record time.

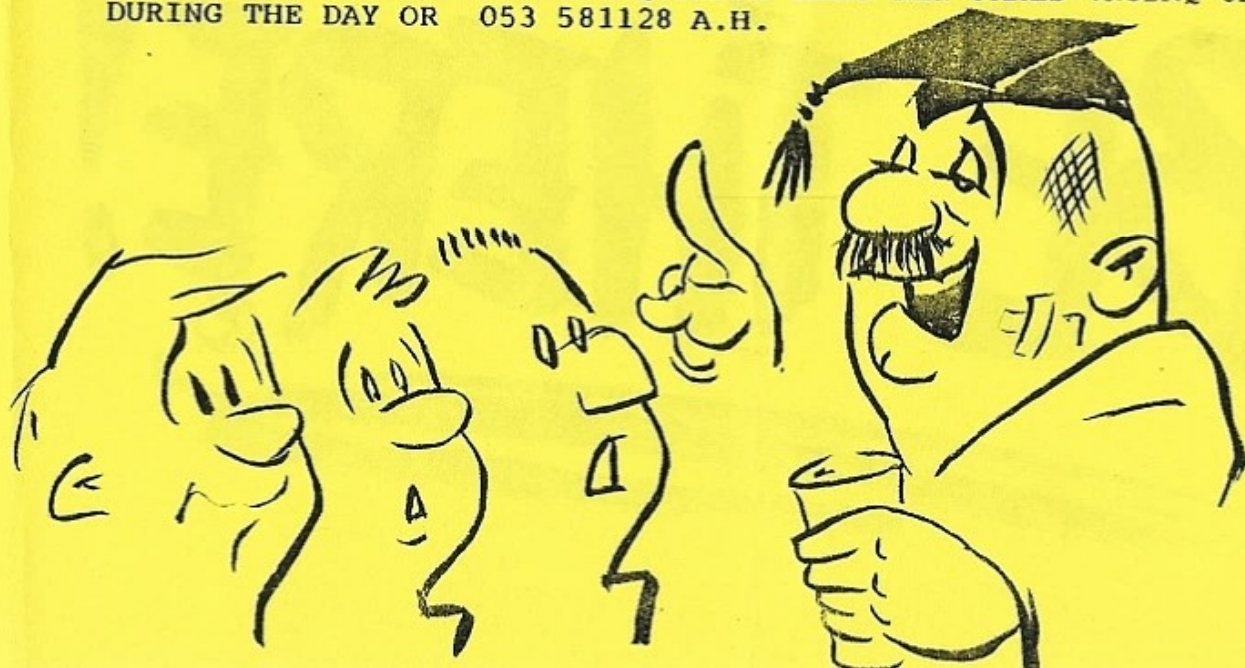
Hey! Know why Ray PRA is so light on his feet? His YL Karen throws a mean 'rig'. Hope he keeps the shack locked.

A great day ! Marred only by the tears of the Geelong 'gang' as we reluctantly (reluctantly be damned, we as pleased as punch) accepted the magnificent trophy for the coming year.

Thanks Fella's, we'll have the kleenex ready again next year .

A great day ! and to all members who were unable to attend due to other commitments, mark the calender, tie a knot in whatever and come along in '84 and be assured of good company, good fun and OH YES ! A Great Day .

NOVICE CLASSES WILL START IN ARARAT THE WEEK OF THE 20th. FEBRUARY
THEY WILL BE HELD AT THE ARARAT TECHNICAL SCHOOL.
TO ENROL OR MAKE FURTHER ENQUIRIES RING KEN JAMES VK3ZKQ ON 053 521661
DURING THE DAY OR 053 581128 A.H.



84/02

Ballarat

WAMMIVENTION '84



BE THERE! ®
